

# PROGRAM FOR ARTERIAL SYSTEM SYNCHRONIZATION (PASS) FY12/13 CYCLE

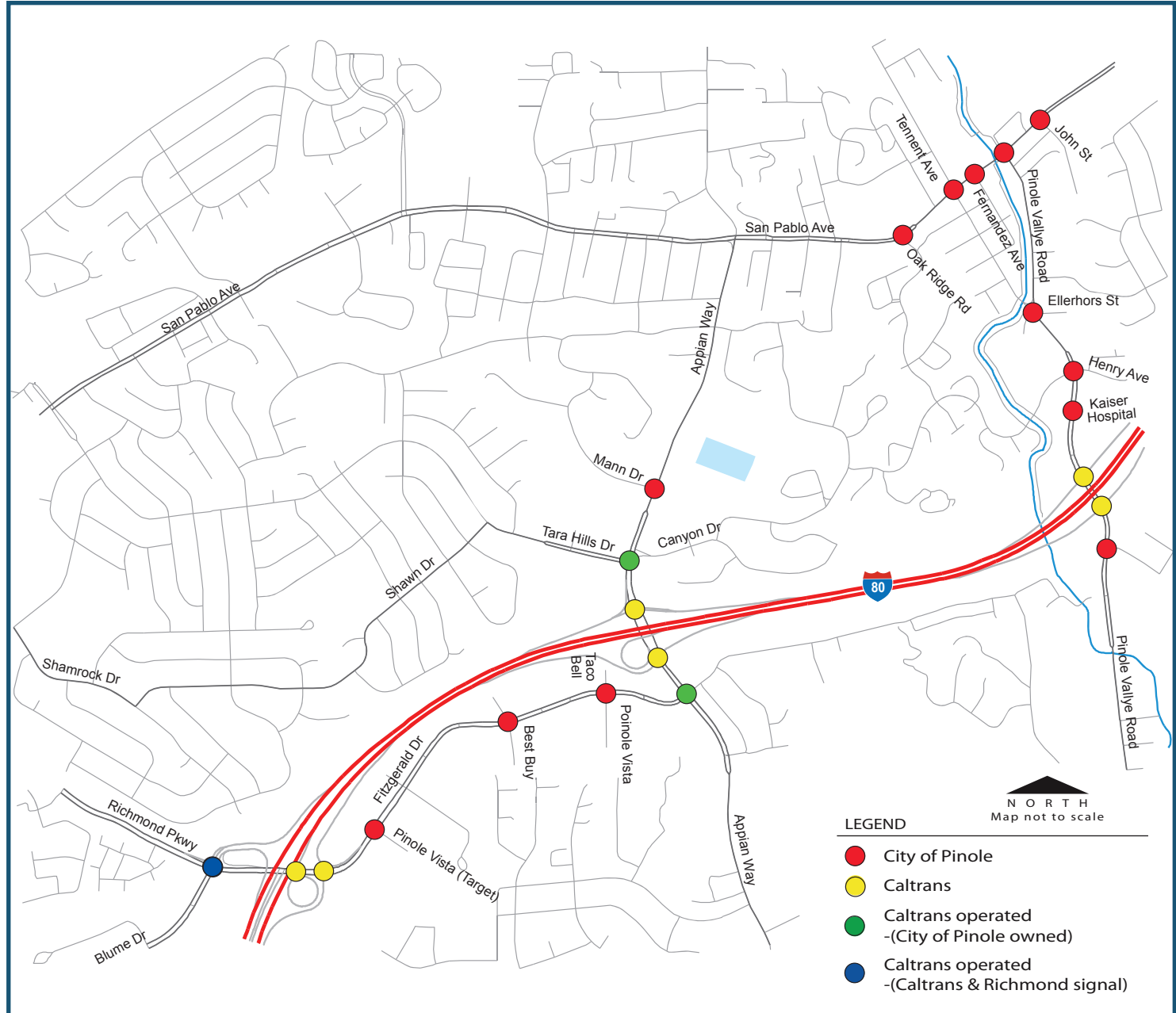
## Pinole Valley Rd/San Pablo Ave/Appian Way/Fitzgerald Dr

City of Pinole | Caltrans | Metropolitan Transportation Commission

### PROJECT OVERVIEW

The City of Pinole, in conjunction with Caltrans, received a Program for Arterial System Synchronization (PASS) grant from the Metropolitan Transportation Commission to develop and implement optimized signal timing plans for 22 signals along Pinole Valley Rd, San Pablo Ave, Appian Way, and Fitzgerald Dr/Richmond Pkwy.

The PASS project has optimized the signal coordination for the weekday AM and PM peak periods for all of the project intersections, as well as develop additional plans to address congestion during the school AM and PM peak periods for the six intersections along Pinole Valley Rd. The project also included an operational analysis to review lane configuration and phasing for the signals at Pinole Valley Rd/Tennent Ave, a 5-legged intersection with heavy school traffic, and San Pablo Ave/Tennent Ave, with heavy left turn movements. This project was coordinated with the schedule of the I-80 ICM project, which installed the signal interconnect between the traffic signals. The ICM project will also develop incident management flush plans for these corridors.



## ...IMMEDIATE RESULTS

After the new timing plans were implemented, the auto stops were reduced significantly by 48%. Additional benefits from reduction in stops include reduced vehicle maintenance, and reduced driver frustration. The additional school AM and PM peak signal timing plans resulted in the reduction in queuing and delay at the Pinole Valley Rd/Estates Ave, which was an important goal for the city in this PASS project.

## BENEFITS TO VARIOUS MODES



**BENEFITS TO BICYCLISTS:** For improved safety, the minimum green intervals were reviewed for bicyclists on the corridor. Changes to minimum green intervals were made at four project intersection.



**BENEFITS TO PEDESTRIANS:** For improved safety, the pedestrian intervals were reviewed and increased at 14 intersections based on the latest California MUTCD 2012 standards.



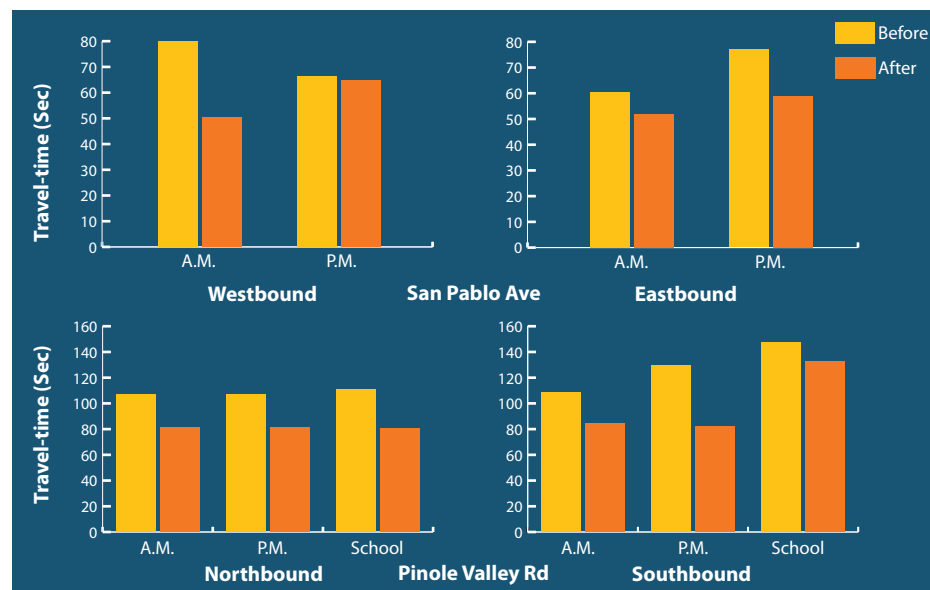
**BENEFITS TO TRANSIT:** To assess the impacts on transit, travel time runs on transit vehicles were conducted both before and after the new timings were implemented. These evaluation results, as shown in the table to the right, demonstrate that the program provides significant benefits to various modes.



**BENEFITS TO TRAFFIC SAFETY:** To enhance traffic safety, the yellow clearance timing parameters were updated based on current standards.

Changes to clearance intervals were made at four project intersections.

Project Costs				
Consultant Costs (Basic Services/Plans, School Peak, Transit Travel Time Runs)				\$65,445
Other Project Costs (Signal Operations Analysis)				\$3,300
Agency Staff Costs (Estimate)				\$16,361
Total Costs				\$85,106
Project Benefits				
Measures	Annual Average		Lifetime (5 Years)	
	Savings	Monetized Savings	Savings	Monetized Savings
Travel Time Savings	13,638 hrs.	\$260,311	68,188 hrs.	\$1,301,557
Fuel Consumption Savings	31,726 gal.	\$127,500	158,632 gal.	\$637,501
ROG Emissions Reduction	0.22 tons	\$281	1.12 tons	\$1,405
NOx Emissions Reduction	0.27 tons	\$4,945	1.37 tons	\$24,725
PM10 Emissions Reduction	0.04 tons	\$6,236	0.21 tons	\$31,181
CO Emissions Reduction	1.42 tons	\$110	7.09 tons	\$548
Total Lifetime Benefits				\$1,996,917
Transit Travel Time Savings	63 hrs.	\$1,212	317 hrs.	\$6,058
Total Lifetime Benefits with Transit				\$2,002,975
Overall Project Benefits			Auto	Transit
Average Decrease in Travel Time			22%	4%
Average Speed Increase			26%	5%
Average Fuel Savings			19%	N/A
Average Reduction in Signal Delay			58%	N/A
Average Reduction in Number of Stops			48%	N/A
Overall Benefit-Cost Ratio			25:1	



## PROJECT BENEFITS SUMMARY



**Average Reduction in Auto Signal Delay: 58%**

**Average Reduction in Number of Stops: 48%**

**Auto Fuel Consumption Savings: 19% or 158,632 gallons**



**Total Emissions Reduced (ROG, Nox, PM10, CO): 9.79 tons**

**Auto Travel Time Savings: 22% or 68,188 hours**



**Average Transit Travel Time Savings: 4% or 317 hours**

**Overall Project Benefit-cost Ratio = 25:1**



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## Project Consultant:

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